The Builder.

VOL. XIII.—No. 664.

IN our present number will be found a view of one of the mediæval glories of Paris, the SAINTE CHAPELLE, as it now appears in its restored state;* and we propose to give some little account of it, and to say a few words about other parts of the ancient city. The observations we thought it our duty to make recently touching Paris and the Parisians of the present day, have brought us a heap of letters from both Frenchmen and Englishmen, admitting their justice, and urging us to a continuance of the remarks. It is to be hoped that what has been said may assist in leading to improvements in a sanitary point of view, in which case the Parisians will have more cause to be thankful than if we had joined the ranks of their indiscriminating adulators. We shall have more to say on this head, and of some of the modern buildings. We have some memoranda, too, of special objects in the Universal Exhibition, aided by notes furnished to the Board of Trade by some of the English Commissioners and jurors, about to be published: but these must bide their time.

The germ of this Paris of the nineteenth century is the small island in the Seine, now known as *La Cité*, whereon stands the cathedral of Notre Dame. This was the *Lutetia* of the Romans; a bridge over the Seine on either side, beyond the east end of the cathedral, connecting the city with the roads to the provinces north and south. At the other end of the island, the western, the kings of France fixed their habitation. There, too, the parliament met, and the judges dispensed the law. The palace occupied more than a third of the whole area of the island, and bristled with turrets and spires. Fire devastated it in 1618, and again in 1776. The Palais de Justice was afterwards modernized, and at the present time the remains of the mediæval building are comparatively few. Chief amongst them is the Sainte Chapelle.

In 1239, through the necessities of the reigning Emperor of Constantinople, Louis IX. ("Saint Louis") obtained possession of the Crown of Thorns. Two years afterwards, other relics of the Saviour came into his possession, and he determined on building an edifice for their reception. He therefore instructed his architect, Pierre de Montereau, or Montreuil, to prepare a magnificent shrine, and himself laid the first stone in 1245. In three years, with the expenditure it is estimated of 40,000*l.* Peter finished his noble work;† and on the 25th of April, 1248, it was consecrated. Well did Pierre de Montreuil realise the wishes of his master, and in so doing he raised a monument to himself. He died, we may add, in 1260, or as some state, in 1266, and was buried in the Chapel of the Virgin, in the abbey of St. Germain des Prés. A Latin inscription on his monument, according to M. Froche, in his account of the Sainte Chapelle, said (using M. Froche's words), "*Ici repose Pierre de Montereau, l'honneur des mœurs et le maître des carriers. Dieu l'appela à lui à l'âge de 54 ans.*"

The building is in two stories, the lower chapel and the upper chapel: the extreme outer length, including the buttresses, is 118 feet; the extreme width, 55 feet; the width between the wall, 35 feet; the height from the ground externally, to the apex of the gable, 138 feet; the height of the upper chapel from the pavement to the crown of the vault, 67 feet; and the height of the spire from the ridge to the weather-cock, 114 feet. The rose-window, we should add, was the work of a later period.

In the decoration of it internally, gilding, painting, enamel and stained glass, were used lavishly, and all the resources of art were drawn upon. Royal marriages, betrothments, and coronations, took place in the Sainte Chapelle; and it was the starting point of numerous expeditions to the Holy Land. In 1791, it was given up to lay purposes, became the meeting-place of a club and a depôt for flour, and was much injured.

Louis XVIII. and Charles X. showed their desire to bring it back to its original purpose and condition, but it was not till the reign of Louis Philippe, in 1837, that its restoration was decided on, the task being entrusted to M. Duban, architect, with Messrs. Lassus and Viollet-le-Duc as assistants. After twelve years' work it came wholly into the hands of M. Lassus, by whom it has been carried satisfactorily to completion. The accompanying view of the exterior renders description unnecessary, and we shall hereafter give a view of the interior. It will be noticed that on the pinnacles of the turrets at the west end, on each side of the rose-window, the Crown of Thorns is represented above the Crown of France.

The spire, which M. Lassus has erected with much skill and taste, adopting, nevertheless, the style of a later period than that of the building, is the fourth that has surmounted the Sainte Chapelle. The third of these, erected by Louis XIII. was destroyed in 1791. Around the octagon base of the spire are figures of the twelve apostles, larger than life. The figure of St. Thomas is a representation of the architect, M. Lassus; St. Philip is a likeness of M. Steinheil, glass painter; and various figures scattered about the spire represent the carver, the modeller, the lead-worker, and others immediately concerned in the restoration, and are inscribed with their names. With the exception of the cross and weathercock, which are of iron and copper, the whole of the ornamental work is of lead, formed with the hammer, and gilt: the ornamental work on the ridge, very large and elaborate, is also of lead. At the eastern termination of the ridge is the figure of an angel, nearly 10 feet high, which revolves, by means of clockwork, with the sun. One hand holds a cross and the other points to the position of the sun. Messrs. Durand, of Paris, by whom the works in lead were executed, deserve mention. "No hammered leadwork," says M. Froche, "had been executed since the fifteenth century; this, then, is the first instance wherein for four centuries such work has been done, a circumstance we consider as a fresh and precious conquest for industry. We must, logically, infer that one of the unquestionable advantages of monumental restoration is to establish intelligent workmen, to elevate them in a degree, by bringing them nearer to the artist, and to create new resources for the arts and commerce." In this way, restorations, and more especially this of the Sainte Chapelle of Paris, have revived branches of industry extinguished, or rather forgotten, for a long time, such as working in iron, painting in enamel, glass staining, repoussé work, and embroidery.

The interior glows with colour, gilding, and enamel: the windows are filled with stained glass, and every inch of the walls and ceiling is painted,—on the whole, as it seems to us, very successfully. There is a prodigious quantity of stained glass, and the ancient portion is particularly valuable in the history of the art, because we know that, with the exception of that in the rose-window, it was there when the chapel was consecrated in 1248. Much of the ancient glass was destroyed. The building had been used previously to the restoration, as a depository for records (like the Chapter-house, at Westminster), and the lower part of each window had been removed, and the openings blocked up: no care had been taken when repairs were executed to make the subjects perfect, and the whole was in disorder. The importance and difficulty of this part of the restoration being felt, a public competition was invited, and the Minister of Public Works, named a commission to make the selection. The artist chosen for the undertaking was M. H. Gérente, but he had made but small progress with the work before, unfortunately in 1852, death carried him off. M. Steinheil, with the practical co-operation of M. Lusson, was then appointed in his place, and by these gentlemen the windows have been perfected. Each window, as is usual with glass of the thirteenth century, presents a number of subjects, one as many as 121, all taken from the Old and New Testament, with the exception of those in one window, which relate to the history of Saint Louis and the translation of the holy crown of thorns. The first window on the north side, beginning from the west end, illustrates the Creation of the World, the Fall of Man, and the History of the Patriarchs: the second, the History of Moses, the Captivity of the Jews, their Deliverance and Victories, the Tables of the Law, and so on. M. Guilhermy points out the curious circumstance that in the sixth window, the second in the Absis, which exhibits the history of Isaiah, the prophet is shown reprimanding *Mahomet*, who is represented as the personification of Idolatry. The name of the Arab legislator is written by the glass painter of the thirteenth century exactly as we write it to-day.

The windows, we may add, consist mostly of a dark blue ground, with red and yellow upon it. The ceiling is blue, sprinkled with the everlasting gold stars, and there is a large amount of gilding amongst the colours on the stonework. We shall return to the subject when we give a view of the interior, and in the meanwhile we have said enough to show that there is much to be seen in the Sainte Chapelle of Paris.

THE CHEMISTRY OF BUILDING MATERIALS.*

WITH the following we conclude our report of the papers read at meetings of the Architectural Institute of Scotland, by Dr. George Wilson, and printed in its "Transactions."

Composite Limestones.—The majority of limestones contain other ingredients besides one or both of the calcareous carbonates. A cursory examination is sufficient to demonstrate that many of them are aggregations of shells, corals, and the stony skeletons, habitations, or other solid appendages, of fresh water and marine animals.

Those shells, corals, and the like, are sometimes tolerably perfect, but more frequently are broken into fragments of various sizes, or reduced to a chalk-like powder, in which the larger fragments are imbedded. They have been fractured, comminuted, and pulverized under water, from which they afterwards deposited in sedimentary strata; these have ultimately consolidated into limestone rocks, and as such, now form in many parts of the world whole mountain masses. Rocks formed in this way must contain more or less of all the substances originally present in the calcareous (as well as some of the other) appendages of the animals from whose remains they are produced. Organic matter, accordingly, generally in the form of coaly or bituminous deposits, and phosphate of lime, may generally be looked for in such limestones. The cavities also left empty in the shells and corals, by the death of the animals once occupying them, become filled up, in some cases, by shell powder or chalk; in others by crystals of carbonate of lime; in others by silicious sand, or clay, or bitumen, or mixtures of all.

* See p. 511.

† In the "Itinéraire Archéologique de Paris," by M. Guilhermy, the cost is stated at 800,000 *livres*. But this must be an error; francs must be meant. Including the relics and the shrines to contain them, about 120,000*l.* were spent.

* See pp. 376, 387, 410, 429, 435, 447, 460, 472, and 488, ante.

Further, as the process we are describing is carried on under water, and irregular fragments of shells cannot cohere without leaving spaces unoccupied between them, these spaces cannot fail to become filled up with such substances as are in solution or suspension in the water; but these will be very much the same things as have already been referred to as liable to fill the emptied shells.

It would serve no practical end to discuss, one by one, all the varieties of composite limestone. Suffice it to consider the following:—

1. Petrifaction limestone.
2. Silicious limestone.
3. Aluminous limestone.
4. Phosphatic limestone.
5. Bituminous limestone.

1. *Petrifaction Limestone.*—This variety of stone is most familiar in its form of shell or shelly limestone; but as many beautiful building stones of our own country consist chiefly of *madrepores* and other corals, and others of *encrimites* or stone lilies (the skeletons of animals allied to star-fishes), it is better to employ a title sufficiently comprehensive to include them, as well as the shelly limestones.

The petrifaction limestones are generally dark in their ground tint, probably from the presence of animal matter more or less reduced to a coaly or bituminous consistence; but this colour of ground favours by contrast the display of the shells, corals, and other fossils, which are white or cream coloured. Fossiliferous stones of this character are of necessity unequal in structure and solidity, the matter interposed between the fossils, and binding them together, being either harder, or, as more frequently happens, softer than they are. Such a mass cannot take a uniform polish, and must wear unequally; for atmospheric and other destructive agencies act with greater energy on the softer portions. But this unequal wearing does not interfere with the use of the highly fossiliferous limestones for internal decorative purposes, to which, under the name of marbles, they are largely applied; nor does it, where the stone is compact, interfere with its application in external architecture. Several of the oolitic limestones contain, interspersed among their characteristic ovules, fragments of shells, occasionally in large number. Such shelly oolites, however, are in high esteem in England, and have stood, in well-known edifices, the wear and tear of all the destructive agencies to which they are exposed for ages.

2. *Silicious Limestones.*—Mixtures or combinations of silica and carbonate of lime occur frequently in nature, and as they unite, in certain cases, the good qualities of a sandstone to those of a limestone, they are unexceptionable as building materials.

In a well-known calcareous sandstone, that namely of Fontainebleau, we find the crystalline form of pure carbonate of lime assumed by it. Chert or hornstone, on the other hand, which is used, on account of its hardness, for making mill-stones, represents, in certain of its specimens, an exceedingly silicious limestone passing into silica, and in all cases too hard for a building material.

A moderate amount of silica is not prejudicial, but probably rather beneficial to a limestone in relation to architecture. Thus, Salisbury cathedral is built of a limestone quarried at Chillmark, in the neighbourhood of the cathedral town, containing 10 per cent. of silica; and the excellent condition of that edifice, as well as of Wilton Abbey, and many other buildings in Wiltshire, constructed of the Chillmark stone, amply proves its durability.

3. *Aluminous Limestones.*—This class of limestones is likewise named *argillaceous*, and owes its peculiarities to the presence, in the stones included under the title, of silicate of alumina or clay. Mixtures of carbonate of lime and clay are exceedingly common in nature; but few of them are sufficiently hard and compact to come within the category of stones. It will presently appear, however, that they are of high value, though not stony in structure, as sources of hydraulic mortar. Where they are thoroughly consolidated, they are equal to combinations of limestone and slatestone, and as such cannot be wanting in durability. One may be named,—the limestone from Tottenhoe, near Dunstable, Bedfordshire, with which Woburn Abbey, and many other edifices in Bedfordshire and Hertfordshire have been erected. It is described by the reporters on the stones for the Houses of Parliament as "consisting of calcareous and argillaceous matter in about equal portions."

4. *Phosphatic Limestones.*—This variety of limestone has not as yet been recognised as a class, and perhaps scarcely deserves to be specially noted. It takes its name from the phosphate of lime and phosphate of magnesia, which, as they occur in the shells and other calcareous skeletons and marine animals, must be present in most limestones derived from them. Its quantity is never large, in general not exceeding $\frac{1}{1000}$ of the weight of the limestone: occasionally, however, it is ten times more abundant, amounting to more than 1 per cent. on the stone. As calcareous phosphates are among the most essential, and at the same time least abundant constituents of the food of plants, limestone containing them is of special value for agricultural application; and, conversely, a phosphatic limestone is the least desirable variety of its class for architectural purposes, where the growth of lichens and other vegetable matters is objectionable.

Reference has already been made to the very uncertain nature of the information we possess concerning the conditions which favour the growth of plants upon stones. It does not appear even to have been ascertained whether sandstones or limestones foster their growth most. Speaking solely from a speculative point of view, it may be inferred, that as the materials for plant-growth are much more abundant in limestones than sandstones, the former would more readily cover with vegetable incrustations than the latter; and this view appears to be justified by the tenor of the Report on the Stones for the Houses of Parliament. Yet a very competent judge, Hugh Miller, refers to the village of Olney, in Bedfordshire, as "built of a calcareous yellow stone from the oolite, which, as it gathers scarce any lichen or moss, looks clean and fresh after the lapse of centuries." (First Impressions of England and its People, p. 277.) After all, however, the Olney stone must be an exceptional one, for the ancient ecclesiastical buildings of England, constructed of limestone, are notoriously spotted with lichens and mosses, at least in country places; but perhaps not more so than the sandstone buildings of equal age. The question must be open for future inquiry, and with it the further query, does a stone gain or lose in beauty by lichen incrustations?

In whatever way æsthetical judgment may be satisfied in reference to the lichen spots and moss stains on stones, however, it must sometimes be desirable to avoid them as long as possible. Where this is the case, the purest simple or magnesian limestone should be preferred; and where, on the other hand, a quick spotting is desired, the composite limestones, and especially those rich in phosphates, should be preferred.

5. *Bituminous Limestones.*—From the circumstances under which limestones have been formed, they must be liable to contain vegetable matter, derived from the water in which they were originally deposited, and animal matter, resulting from the decay of the shell-fish and coralline creatures from the tenements of which they have been mainly produced. These vegetable and animal remains have, in the course of ages, become converted into a carbonaceous or coaly substance, often accompanied by bitumen. In some cases, this matter is so equally distributed in the stone, as to give it the uniform dark colour so much admired in black marble. In others it produces streaks or veins, sometimes beautifying, sometimes disfiguring the limestone. Occasionally limestones, such as the white marble from Skye, discolour and darken when exposed to the air, in consequence, it may be supposed, of retained organic matter becoming carbonised by a change such as we are familiar with in exposed beds of coal. It is probably owing to a similar but less advanced change or decay, that certain limestones, when struck or rubbed, emit an offensive odour, and have been distinguished as a class by the title of *fetid*.

Bituminous limestones, accordingly, must not be rashly selected as building materials; but where not otherwise unsuitable, it is likely that their bituminous impregnation will make them more durable, by rendering them less permeable by air and water.

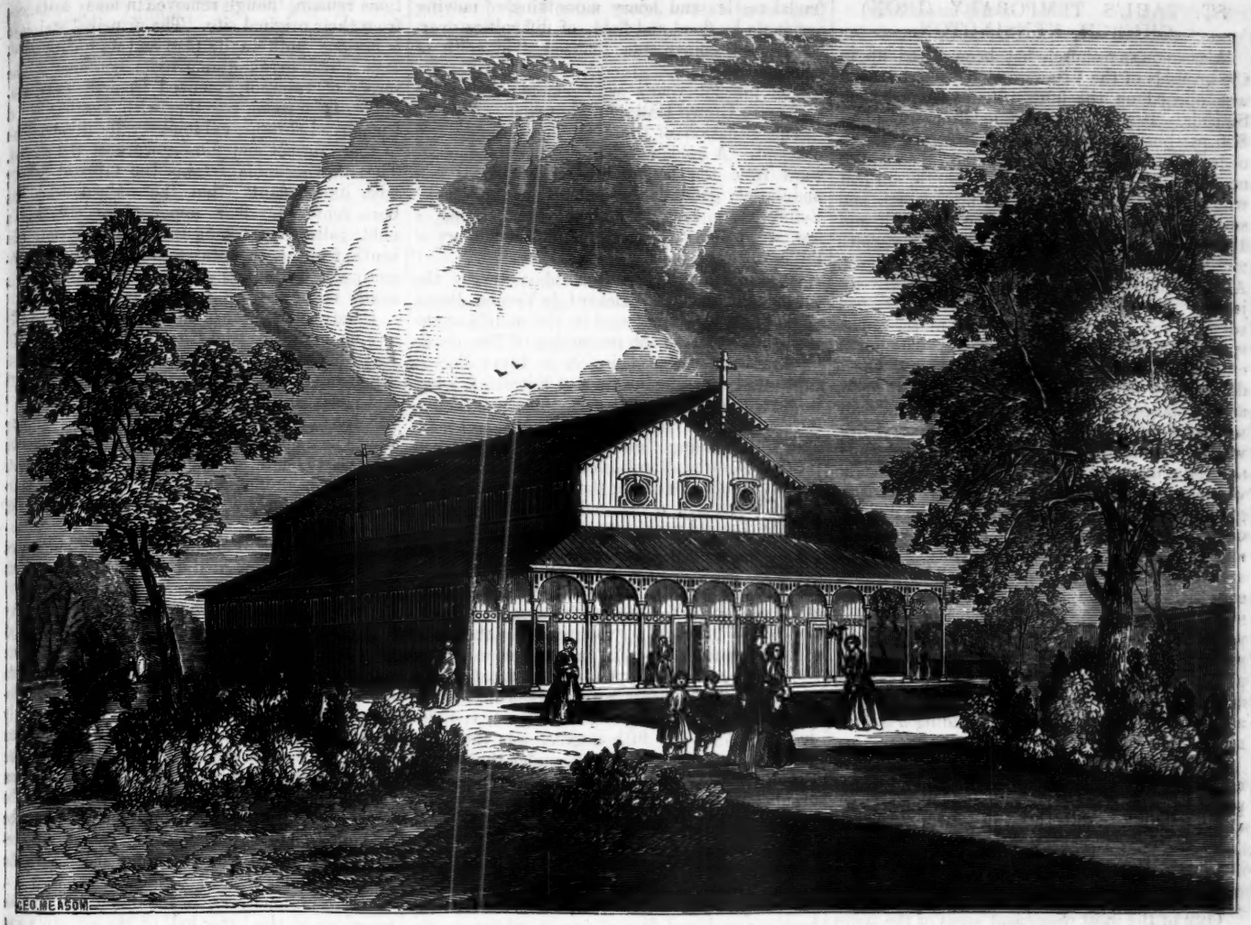
From what has been said, it will be seen that there is large choice of building materials among the limestones. Their greater softness makes them more easily wrought, at a smaller cost, and with less injury to the health of the workmen, than is the case with the sandstones. Their colour is generally pleasing, and they are not liable to iron-spots. Theory would indicate that they are less durable than the sandstones as a class, and this inference is borne out by the fact, that in Oxford, York, and other English cities, the decay of certain limestones employed in building has been so great in from twenty to fifty years, as to render inscriptions on monuments illegible, and to efface all the finer lines of carving. This, however, is not the general character of the building limestones, which, even in our climate, have endured, without undergoing serious decompositions, the storms of many centuries.

In reviewing the list of building stones now discussed, it is worth while to observe that there are special purposes for which each of the more important ones is adapted. Thus, granite is justly preferred for such a building as the Skerryvore Lighthouse; slate-stone for floor-slabs; and slate for roofing. Greenstone, uniting hardness to a texture which prevents its acquiring a polish and becoming slippery, is peculiarly suitable for causeway stones and road metal. Fine-grained, hard, compact sandstones, are superior to every other building material for the construction of edifices where delicate tracery and minute carving are exposed to the destructive meteoric agencies of a variable northern climate and a city atmosphere. Where, on the other hand, due protection can be given, the petrifaction limestones and true marbles can be economically wrought into pillars, slabs, wall-tablets, and the like, possessed of a beauty of colour and lustre such as no other stone can rival.

For general building purposes, sandstone or limestone will always be preferred where they can be procured. It would be folly, of course, for the inhabitants of Aberdeen to send to a distance for either, when they have inexhaustible supplies of granite close at hand; but where there is a choice, that beautiful rock is too difficult to work to be preferred to the calcareous or silicious freestones.

As to the relative advantages of sandstone and limestone, they are so nicely balanced, so far as ordinary buildings are concerned, that a small matter may be allowed to decide the choice betwixt them. The inhabitants of Bath are not likely to send to Edinburgh for sandstone, nor those of Edinburgh to Bath for limestone. Nor is there probably any district in the country where limestone and sandstone occur equally good of their kind, equally abundant, and equally accessible. Where these rare conditions are realised, limestone would be preferable for the humbler edifices, and for the less exposed portions of the more stately ones. Such a combination of limestone and sandstone is not uncommon in our older ecclesiastical buildings, and is being carried out to some extent in the new Houses of Parliament, where the Bolsover magnesian limestone is chiefly employed, but not to the exclusion of sandstone.

In conclusion, it must be admitted that much more requires to be done by professors of chemical science, in the way of analysis and research, before they can give great *positive* assistance in the selection of building stones; for at present we must confess we are at a loss to explain why one granite, or sandstone, or limestone, rapidly decays, whilst another, to appearance and analysis the same, is practically indestructible. But this only shows that our analysis has not been sufficiently full and minute to bring out the points of difference between the destructible and indestructible specimens of stone, not that such points of difference do not exist. We can already, however, negatively assist by pointing out, as already done, *certain* signs of destructibility and indestructibility in building materials.



ST. PAUL'S TEMPORARY CHURCH, KENSINGTON.

ST. PAUL'S TEMPORARY (IRON) CHURCH, KENSINGTON.

A TEMPORARY church has been fitted up in the grounds of the Vicarage at Kensington, and was opened on the 30th ult. by Archdeacon Sinclair. It affords accommodation for about 800 persons, and is the first temporary church of iron put up in the metropolis. The edifice consists of a nave 72 feet in length, 30 feet wide, and 24 feet high to the ridge; north and south aisles, 84 feet long, 13 feet in width, and 17 feet high; and a chancel of the same width and height as the nave, and 24 feet in length. At the end of the north aisle, immediately adjoining the chancel, is the vestry, 12 feet square; and the organ is placed in the corresponding portion of the south aisle. The porch extends the width of the west end, and has a depth of 12 feet. The roof, internally, is open, and of stained deal. The church is warmed by means of hot-water pipes, which traverse the walls. The seats are open, with panelled ends, and like the roof, are of stained deal. The whole of the building is externally of corrugated galvanized iron. It would not be difficult on a future occasion to give a more ecclesiastical character to such a structure externally. The arrangement is, that 5s. a year shall be paid for each sitting to the contractors, Messrs. Hemming and Co. of the Clift-House Works, in the parish of Bow. If the proceeds of the seat-rents do not suffice to meet the annual expenses, the deficiency is to be made up by the archdeacon: if a surplus is realised, it will be applied in aid of the fund for building a permanent edifice of stone.

Messrs. Hemming, we may mention, have contrived an iron hut for barracks and other purposes, which appears to possess several advantages.

SOME ACCOUNT OF CREWE HALL AND NANTWICH.*

ONE of the most prominent signs of the times in which we live is said to be the principle of combination,—that voluntary but most efficient act of mutual effort by which we explore the mine, construct the rail, bridge the ocean, and girdle the earth with a cord of lightning. Science, literature, and art, feel the influence and experience the benefit of this all-powerful principle, and the society to which these remarks are addressed is an evidence of its efficiency when applied to a particular branch of knowledge.

Another principle not less powerful, and perhaps more innate, has been of late called into extensive operation in connexion with unions for scientific and literary purposes; I mean the love of nature,—that unquenchable instinct in man's nobler part which every advance in intellect tends only to purify and exalt. Hence we find that every society of any pretension has its summer excursion. Some meet in general conclave to bring up the reports on every branch of science to the latest date. Others explore the mountains hammer in hand, and extract the wondrous tale of their geological history. Many wander through the lovely valleys of our land in search of fresh contributions to botanical science; whilst others, like ourselves, are more attracted by the ancient castle, the quaint manor-house, the hoary cathedral, or the quiet village church, nestling in its garden of graves. But whatever be the pursuit,—the free air, the lovely landscape, the out-of-door enjoyment contributes much to its attraction.

"'Knowing that Nature never did betray
The heart that loved her; 'tis her privilege,
Through all the years of this our life, to lead
From joy to joy: for she can so inform
The mind that is within us, so impress
With quietness and beauty, and so feed
With lofty thoughts, that neither evil tongues,
Rash judgments, nor the sneers of selfish men,
Nor greetings where no kindness is, nor all
The dreary intercourse of daily life,
Shall e'er prevail against us, or disturb
Our cheerful faith, that all which we behold
Is full of blessings."

The Liverpool Architectural and Archæological Society has had its annual excursion every summer since its commencement, and many a pleasant reminiscence is called up by the allusion,—of lovely valleys and pleasant streams, of feudal castles and hoary mountains, of moving accidents by flood and field, of difficulties overcome, and enjoyments realised, "in spite of wind and weather."

The present year's arrangements called the society to Crewe Hall and Nantwich. * *

The situation of the Hall is agreeable and pleasant. A noble sheet of water extends eastward from the house, backed by woods and undulating grounds extending on every side. Before attempting to describe the building, a few words may be desirable on the history of the locality.

At the time of the Domesday Survey the township belonged to Richard de Vernon, Baron of Shipbrook. It is found in the middle of the twelfth century in the possession of Thomas de Criwa, with whose heirs in a direct line it continued down to the time of Edward I. when it passed by marriage to the family of Foulshurst. In the reign of Elizabeth it was sold, and after passing through several hands it was purchased by Sir Randolph Crewe (Chief Justice of the King's Bench in the reigns of James I. and Charles I.), a descendant of the original Crewes, the old possessors of the soil. There is something pleasing to contemplate in the spectacle of the youth going forth from the little town of Nantwich to devote himself to the study of the law, winning fame and fortune in the great metropolis, repurchasing the lands of his ancestors, building a mansion worthy of the times and of himself, and reinstating his successors in a higher position than that which his ancestors had lost. John Crewe, esq. his descendant in the fifth degree, was raised to the peerage in the year 1806, under the title of Baron Crewe, which is now enjoyed by his grandson.

Crewe Hall is a fine specimen of the manor-house of the Jacobean period of art. It is quadrangular in plan, the north and south sides being longer than the others. There was originally a small inner court, which has recently been covered and formed into a saloon on the ground floor. The exterior of the house is built with red brick, with white stone quoins and facings. The fronts are broken by slight projections and recesses, the projections being surmounted by carved and kneed gables with pinnacles. The windows are large, having stone mullions and transoms: several of the fronts have projecting bay windows. The red bricks of the exterior fronts are diversified by lozenge-shaped figures worked in dark blue brick. The principal entrance is in the south front, and presents a bizarre combination of columns surmounted by pilasters, with scroll-work, ornamental quoins, balustrades, and pinnacles. The cornice round the mansion is finished with an open-work balustrade. From a print in King's Vale Royal, showing the house as it then stood, it would appear that this balustrade has been subsequently modified from the original design. The chimneys are well grouped, and characteristic of the style. A well-designed stone balustrade surrounds the house.

The grounds surrounding the mansion, originally laid out in the formal stiff manner of the period, have been much altered, and retain very little of their original arrangement. The present noble owner has done much to improve the external aspect, by carrying out balustraded terraces between the house and the lake, laid out with parterres of flowers,—imparting a feeling of modern elegance, without detracting from the quaintness of their older style.

The interior is very interesting for its very characteristic style of decoration, though the interest, in an archæological point of view, is somewhat abated by the changes and alterations which have been made. It is only justice, however, to state that the alterations have been made with much judgment and taste, and that in the adaptations and changes called for by modern ideas of convenience, the antique feeling has in no instance been interfered with. This, in fact, to the antiquary, becomes rather a source of annoyance, since it is difficult, without careful examination, to distinguish between the new and old work, and the domestic arrangements have been so far altered as to render the building no longer an example of the *ménage* of a country gentleman in the early part of the seventeenth century. However, the decorations remain, though removed in many instances from their original site. The principal staircase is curious, both in its plan and its quaint carvings. The great dining-room contains a fine screen of wainscot, removed from the entrance-hall. This room, together with another called the carved parlour, exhibit very fine illustrations of the wainscot and plaster work of the period. The drawing-room retains the original ceiling with its pendants; but the wainscotting has been removed. The upper story contains a noble gallery, extending the whole length of the south front, with recesses formed by the projecting bay windows. The domestic chapel is neatly fitted up with dark wainscot.

Illustrations, both of the exterior and interior, will be found in Richardson's "Studies of Old English Mansions," first, second, and fourth series. The staircase is given in Britton's "Antiquities," and views are given in Ormrod's "Cheshire," and Lysons' "Magna Britannia." The building was commenced by Sir Randle Crewe, in the year 1615, and completed in 1636. Seven years afterwards it was garrisoned for the Parliament, taken by Lord Byron on behalf of King Charles, and again retaken by the Parliamentary forces. Fortunately, the building does not appear to have sustained much injury from these warlike operations.

On the whole, Crewe Hall presents many points of great interest to the architectural student. The combination of brick and stone mellowed by the hand of time during the lapse of 220 years, is agreeable to the eye. The design is pleasing in itself, and while sufficiently characteristic of the age and style, is free from many of the barbarisms which disfigure the greater part of the buildings of the Elizabethan and Jacobean periods. If this style is to be adopted at all for modern buildings, it would be difficult to find a specimen more free from objection and more worthy of careful study than the one now under review.

There is something in the quaint old English mansions of the latter half of the sixteenth and first half of the seventeenth centuries full of interest to a contemplative mind. They open out a chapter not merely in the history of architectural styles, but a far higher one in the progress and development of the human mind. The history of architecture requires to be rewritten, in one of its departments, and that probably the highest of all—the relation of architectural forms to the mental and moral condition of the races and periods in which they prevailed. If architecture be, as it has been well said, history in brick and stone, it must be the history not merely of dead matter, but of living, breathing thought, considered from a point of view calculated to throw much light on the progress of the human race.*

So far as we are aware, the field is almost an untrodden one. The only writer who has at all touched upon the subject is the eloquent author of the "Stones of Venice;" and were he to undertake the task of fully developing the subject, there is none so well calculated by his great talents and well-stored mind to do it justice.

To glance for a moment before quitting Crewe Hall, at the relation of Elizabethan and Jacobean architecture to the times of its production. The century, extending from 1550 to 1650, was one of the most stirring in the history of our country. Religion, politics, literature, language, all underwent serious, and, in some instances, radical changes. The minds of men losing sight of their accustomed landmarks, eagerly sought for light and direction from any quarter. The spirit of freedom and political right was roused, never again to slumber. Literature, shaking off its ancient trammels, carved out for itself new roads to immortality, and especially distinguished itself in the drama,—that living picture of human nature intensified,—which never flourishes but in times of intellectual vigour and action. It was the age of Shakspeare, the age in which Milton was nurtured, the age in which the genius of

* Read by Mr. J. A. Picton, at a recent meeting of the Liverpool Architectural Society.

* On this subject M. Viollet le Duc, in his excellent "Dictionnaire Raisonné de l'Architecture," just published, thus observes:—"C'est difficile de rendre compte des transformations successives des arts de l'architecture, sans donner en même temps un aperçu de la civilisation dont cette architecture est comme l'enveloppe, car nous ne saurions admettre l'étude du vêtement, independamment de l'étude de l'homme qui le porte."

Bacon burst through the fetters of the ancient schools of philosophy, and pointed out the only sure and safe way for the advancement of learning and science. Now we cannot help thinking that this peculiar state of the English mind, experimenting, feeling its way, trying its strength, and occasionally indulging in quaint conceits and grotesque extravagances, is powerfully reflected, or we might rather say is crystallized, in the architecture of the period. Gothic forms and Gothic modes of thought had been equally departed from, but still lingered about the thresholds of our homes and the pages of our writers. Classical literature had already begun to exert a powerful influence, but had not yet interwoven itself into the texture of current ideas and daily thought, as it has done in more modern times. Between the departing faith of the past and the coming influence of the future, a space was left for originality of invention, which may appear odd, capricious, and in bad taste, but which unmistakably presents vividly before our eyes the form and pressure of the times. Examine the front of Crewe Hall or the screen in the dining-room. The mullioned and transomed windows of the former, and the clustered tabernacle work of the latter, exhibit the lingering mediæval feeling. The columns and entablatures in both bear witness to the influence of the classic revival; but the rich open scroll-work, the fanciful panels, the quaint carvings, the embroidered surfaces, evidence a buoyant sense of freedom, a joyous feeling of imagination, revelling in its own strength, peculiarly belonging to the age and country, and in close connection with the fairy festivities of the "Midsummer Night's Dream," and the wonders of the enchanted isle in "The Tempest."

The Elizabethan and Jacobean architecture is peculiarly English, and differs materially from the works of the same age on the Continent, and even in Scotland. Whatever be its merits æsthetically, it is a link in the chain of architectural history, and should be studied in a discriminating and candid spirit.

A pleasant drive of forty minutes through an open country somewhat flat, along rich pastures dotted with milch cattle, past clean tidy farm-houses, with their bright dairy apparatus visible through the half-open door; by straw-roofed cottages with timber framing, which have outlived revolutions levelling noble structures with the earth,—and we obtain at length glimpses of a small river winding peaceably through the meadows, full to the brim of its grassy banks. A church tower detaches itself from a mass of surrounding buildings, we turn a corner, and rattling up the *pavé* of a narrow street, we are in the market-place of Nantwich.*

* To be continued.

OUR COINAGE—THE PENNY.

Heraldry has no special representative in the periodical press: I seek therefore the aid of your columns; for architecture and heraldry are nearly allied. I doubt not that you are far better acquainted with the precious metals than with the coppers of the nineteenth century; still you can hardly fail to be the occasional possessor of a penny. It is a highly-respectable and ancient coin; of some weight in the world, and of a size that forbids its passing wholly unnoticed. One of my little boys has been laboriously studying a specimen, and has discovered that Britannia wields the toasting-fork (as he will keep calling the Trident) in her *left* hand: the little vagabond dares further to pronounce the lady's left leg to be out of drawing, and to aver that it would be hurtful to the feelings of any full-grown woman to sit on the edge of a round tea-board (as he irreverently calls the shield). But these are not the matters on which I would address you, although I concur with my boy in thinking, that the state of art in this country is but indifferently represented by our coinage.

As a humble student in heraldry, I wish to point out a highly penal offence committed by the author of our current *penny*, in the total omission of Scotland in the shield, on the edge of which Britannia finds so precarious a seat.

Every true-born Briton knows that the Union Jack comprises the Cross of St. George, gules—the saltire of St. Andrew, argent,—and the saltire of St. Patrick, gules. He knows also, that in order to accommodate the two latter saints, the saltire in our national shield is divided down the centre, half gules, half argent. He further knows that, as the field is azure, and as heraldry forbids the contact of two furs, the Irish saltire needs a line of metal (argent) by way of bordure, intervening between the gules and azure. All this the true-born Briton knows very well, because he sees it on every flagstaff in the United Kingdom.

The Mint medallist must therefore be no Briton proper, but some base Russian in disguise, otherwise he would never hold out so seditious a sign as that on the coin in question. You will there see no double saltire, but a single saltire with the bordure argent on either side, plainly with a view to seduce Scotland from her allegiance. The Scotch have been long wanting a grievance; here is a grievance for the whole Caledonian race!

Seriously, this omission must be an error arising from carelessness or from ignorance. In either case, let Sir John look to it. Let him consider what an explosion of patriotic wrath would burst over his head, if he were to omit the Lion rampant of Scotland from the royal shield that graces our half-crowns; yet such an error in the royal quarterings would be no greater offence to the Crown, than would the omission of Scotland's saltire in our Union Jack be to the majesty of the people.

I trust that after this warning, you and I, sir, may live to see, in the pennies of 1856, the noble art of Blazon vindicated, "the knavish tricks" of the enemy "frustrated," and the integrity of the empire secured. S.

COUNT DE LABORDE'S ATHENS.*

All admirers and searchers of Greek antiquity, from Leake downwards, have felt the importance of information on Athens during the last three or four hundred years, when, after the darkness of the middle ages, it began to emerge again from obscurity by the successive researches of antiquaries and archæologists. Still, the materials for a history of the Greek metropolis from the fifteenth to the seventeenth centuries are most scanty, and were mostly hidden amongst the neglected lumber of the libraries of Rome, Paris, Vienna, &c. It was, therefore, a fortunate occurrence, that while Count de Laborde was engaged on his splendid work on the Parthenon, collateral research led him to embrace the whole history and locality of this once famous city. The work begins with some extracts from Bondelmonte's Liber insularum, and the Portolani and charts of the fifteenth century, showing, however, the great ignorance which then reigned on that subject, although Athens had previously stood in communication with Florence and other parts of Italy, through the family of the Princes of Acciajuoli. The first document of any consequence is the usanonym "Viennensis," being a short description of Athens by a Greek author, in the middle of the fifteenth century. It had been discovered in a theological manuscript of the library of Vienna, and a reprint and *fac-simile* are given here. It bears the strange title of "The Theatres and the Schools of Athens," because the fame of the ancient wisdom and learning of Athens have been preserved so strongly in the whole of Greece, that many other monuments and ruins bore the name of schools (Dascalia). Another pious mistake also occurred then, viz. to refer all great monuments to some great men—viz. the arsenal of Lycurgus, as the Acropolis has been called during several centuries. Other like names were, the Palace of Themistocles, &c. To the "usanonym Viennensis" follow extracts from the sketch-book of San Gallo, also from the end of the fifteenth century. Then is a great gap in our knowledge of Athens during greater part of the sixteenth century, as M. de Laborde could find but scanty notices of H. Blancard (1537), on the Lion at the Piræus, and the Columns at Cape Sunium; A. Thevets on the obelisks, columns, and schools (!) of Athens, which were followed by the Greek letters of Zygomalas and Kabasilas.

* Athènes aux 15, 16, et 17me Siècles. Par le Comte de Laborde Paris, 1854. 2 vols. 8vo.

At a subsequent period decried diplomacy did some good here, by the appointment of consuls (French and English) at Athens. Lord Arundel also, the Duke of Buckingham, and even Charles I. imported fragments of Greek architecture and sculpture to England. Catholic convents were also established in the city of Minerva; and the Capuchin friar, P. Simon, purchased in 1669, the monument of Lysicrates, and built a convent close to it. It was, however, this very same P. Simon and his colleague, P. Barnabi, who first made a plan of Athens from the southern high banks of the Ilissus, whereon the principal monuments, churches, &c. were consigned. M. de Laborde has been so lucky as to find a copy of this plan, together with some MS. notes in the library of Paris, which he has copied in his work. Of the greatest importance was the mission of M. de Naintel, by Louis XIV. (1670), as he ordered the painter, M. Carrey, to make drawings of the pediment and other sculptures of the Parthenon, which was then still in its entire and complete state. In 1674 appeared the short but valuable description of Athens by P. Babin, of which only a very few copies are in existence. About this time Guillet's "Athènes ancien et moderne" also was printed, which, although its author had never been in Greece, but merely followed the plan drawn by the Capuchins, and the "Collectanea" of Meursius, was a very valuable compilation. The ulterior researches of Spon, Vernon, and others, fall within the later period of Hellenic and Athenian researches, sufficiently known to most readers.

WHAT HAS BEEN DONE IN ST. JAMES'S, WESTMINSTER?

In your recent review of the Report of the Cholera outbreak in St. James's, Westminster, you demand, with an emphasis to which your evident personal acquaintance with the scene and the circumstances of the outbreak gives peculiar right, "What has been done in the districts of which we have been speaking?"

I will tell you, sir, "what has been done." You know the pump in Broad-street: you know that there is good reason for believing that it played a very important part in the tragedy of last autumn: you say that "the evidence of connection between the well-water and the loss of life seems so conclusive as scarcely to admit a doubt:" you have, moreover, dwelt upon the fact, so incontestably established by Mr. York, of the gross pollution of this well-water by percolation from an adjoining cesspool—"a state of things" which you characterise as "prejudicial to health in the highest degree, which, nevertheless, may be paralleled," you do not hesitate to say, "in hundreds of places in the metropolis!"

"A state of things," one might almost be tempted to hope, calculated to make an impression even "upon parochial authorities." If, however, any one, in reading your remarks, ventured to indulge in such a hope, let him know, once for all, that he is of very sanguine temperament.

"Go preach to the coward, thou death-telling seer!"

is the answer of the St. James's Paving Board, to any one who thinks to discompose them about any such trifles. "Why make such a fuss about a matter that is past and gone? Do you want to frighten the people into the cholera again, by reminding them of it? Depend upon it, man, fear does all the mischief. Talk about the water! Why, there's Bumper has lived fifty years in the neighbourhood, and has had his 'cold without,' mixed from this very water every night, and is none the worse for it. And Pumper, the teetotaller—how about him? And isn't there at this very moment a memorial before the Board, headed by Stumper of the vestry, and Thumper of the Poor Board, complaining of detriment to their health, through being deprived of their accustomed beverage during the temporary locking-up of the pump pending the investigation. To say nothing of Grumper, the worthy landlord of 'The Parish Hampden,' whose customers are indignant at the bare idea of not being permitted to mix their grog with the water they like best."

Be assured, sir, that this parochial Redan is a wonderfully strong fortress, untenable even

when taken, as you shall now learn from the account of "what has been done."

It appears from the report that so early as September 7th, Dr. Snow had "an interview with the Board of Guardians, the result of which was that the handle of the pump was removed the next day." Soon, however, did the handle return to the scene of its labours, till at length a new enemy, in the shape of the committee, laid hold upon it, and enchained it, straightway proceeding to excavate and explore the subterranean mysteries of well and cesspool with all their deadly contrivances for annihilation of human life. Never was Redan or Malakhoff more infernally mined than this mute meek-looking plague-battery. But what were the Paving Board about all this time, that they submitted to these invasions of their territory? Why did they suffer the enemy, under cover of a flag of truce, to lay bare the apparatus of destruction? Were they taken by surprise? Not they. You have heard, sir, of magnanimous commanders leading spies through their camp, showing them everything, and then sending them off in contempt. Even so with the Paving Board. They know their strength. Why should they care for this petty prying into their affairs? It would only make their final triumph the more glorious and complete. They even disdained to take the paltry advantage of unfettering the handle before the enemy should have had time to marshal his forces for the grand assault. The pump-handle should rise amid the din of battle. In this heroic state of mind did they await "The Report." You are aware, sir, of the power of artillery that was brought to bear upon them. A section was for capitulating, but the majority were of sterner stuff than to yield even to a *feu d'enfer*. Up rose the pump-handle, and the enemy retired discomfited and forlorn. Day and night, for nine long months, had he toiled with his zigzags, and his parallels, and his batteries, but had known neither the strength of the fortress, nor the iron resolution of its defenders.

High festival was held that day in Broad-street, to celebrate the victory of the Board and the defeat of the foe. Full many a copious stream, arrears of libation to offended Cloacina, did the pump send forth. Loud and long the exulting shouts of children working the handle in very wantonness of exuberant joy, whilst ever and anon some veteran hero of a hundred jobs would pause in his passage through the street, to smile complacently upon the exhilarating spectacle. But who shall depict the radiant countenance of Grumper, as he once again tempered the parochial grog with the long-lost fluid, or hazard a description of that evening's *réunion* in his parlour, as toast followed toast, "Long live the Board!" "Confusion to the Committee!" "Success to the Pump!"

I imagine, sir, that you will no longer wonder why the committee recoiled in dismay from an attack on the cesspools. Take my word for it, there is more than one man on the Paving Board prepared to die in the last cesspool.

Mens Sana in Corpore Sano.

METROPOLIS LOCAL MANAGEMENT ACT.

Very much will depend on the election of proper persons in the metropolitan parishes to serve as vestrymen under the new Act. The churchwardens of some of the parishes, feeling the importance of this step (those of St. Martin's, for example), have issued a circular, calling upon their fellow-parishioners to exercise proper caution in the selection. A brief reference to some of the more important features of the Act will show how great are the powers which will devolve on the vestrymen:—

All the sewers of the parish now vested in the Metropolitan Commissioners of Sewers (except the main sewers) will be vested in the new vestry; with powers to repair and construct new sewers, to compel owners of houses, at their own expense, to construct drains into the common sewers, and in default, to perform the work, and charge the owner; no house to be built without drains constructed to the satisfaction of the vestry; all new erections to be for certain purposes under the supervision of the vestry;* penalties imposed upon proceeding without consent of vestry; power of vestrymen at all times to inspect dwelling-houses, and open the ground to inspect the state of the drains, waterclosets, and cesspools; to provide and maintain public conveniences; to pave, light, water, cleanse, and improve the parish; to compel owners of property to incur various expenses, under considerable penalties; to control and regulate the occupation of cellars and underground rooms; to water streets, and to sink wells and erect pumps for supplying water to the inhabitants; to appoint and pay chimney-sweepers; no hoard or scaffold allowed without consent of vestry; to appoint medical officers of health and inspectors of nuisances; powers to purchase lands.

Further, the vestry is directed to execute all the powers given by the "Nuisances Removal and Diseases Prevention Acts," and is empowered to order rates to be raised and levied on the inhabitants, with the poor's rate. It is advisable that every parishioner should well consider the Act, and we cannot do better than recommend the edition of it, just now published,* by Mr. J. J. Scott, barrister, wherein care has been taken to facilitate reference to every portion of it by the subdivision of the various clauses, summaries at the heads, and an elaborate index. It contains, too, the various sections of the Metropolitan Buildings Act, which confer powers upon the Metropolitan Board of Works.

* We have in type those clauses of the Act which are more immediately connected with the Buildings Act, and shall publish them in an early number.

PROVINCIAL NEWS.

Sheffield.—The Sheffield ragged schools committee having accepted tenders for building new schools in Peacroft, the work has been commenced. The new schools are estimated to cost about 1,000*l.* and towards this 600*l.* have been realised. The laying of the chief stone is to take place in a few weeks.

Wisbech.—The following tenders have been given in to the Local Board of Health for the main sewerage and other works in the district:

G. Munday, Wisbech	£11,870	0	0
R. Goodison, Lewisham	10,004	0	0
T. Bothamley and W. Merryweather, Little Bytham	7,899	0	0
R. Barnes, Westminster	7,811	0	0
C. Garrett, London	7,555	0	0
W. Dethick, Hackney-road	7,541	0	0
Friend and Hammill, London	7,466	0	0
R. T. Carlisle	7,464	5	1
Durham and Pearson, Sutton Marsh	7,300	0	0
Swithinbank and Higginbotham, Gloucester	7,300	0	0
J. G. B. Marshall, Westminster	7,259	11	6
J. Phillips, Holloway	7,196	0	0
G. Savage, Northampton	7,145	15	0
T. Gardner, City-road	6,992	0	0
Coker and Co. Ware	6,910	0	0
J. H. Brown, Southampton	6,850	0	0
J. Yeoman, Kentish Town	6,780	0	0
Armstrong and Hudspeth, Alnwick	6,539	4	3½
W. Hill, Whitechapel-road	6,350	0	0
Lee and Lavers, London	5,850	0	0
Pocklington and Sparrow, Sheffield	5,520	0	0

Five or six out of the lowest of the twenty-one tenders were ordered to be selected for further consideration by a committee appointed for the purpose. The estimates provided that the drainage of private properties was to be separately charged for: these charges varied from 8d. to 1s. per foot and more, according to the depth of the drain.

Long Sutton.—A plan for the removal of nuisances in this town, and for draining the same, has been deposited with the vestry clerk for inspection of the ratepayers. The report of the surveyor of sewers states that the natural falls are so small that no system of barrel drainage could be made efficient, and therefore, proposes a main drain of glazed stone and ware pipes, 15 inches in diameter, discharging into a brick tank, 20 feet in diameter, and 20 feet deep. From this tank it is proposed to pump the refuse by a steam-engine of 10-horse power, into another tank, provided with straining apparatus for collection of the solid matter. The estimated cost of the whole is 2,574*l.*

Leicester.—At a recent meeting of the Leicester Corporation, a letter was read from Mr. Wicksteed, consulting engineer, announcing the completion of the main or deep sewers of the town. Mr. Wicksteed states that the run through the sewers is good, and that the process of disinfecting the sewage water, carried on at the Patent Solid Manure Works, is complete. The water, he continues, passes through their works, and is delivered into the Navigation, not only in an inoffensive, but in a drinkable state; and this operation has been going on without interruption day or night since 18th April last.

Bedminster.—The British Schools, Back-lane, Bedminster, having been enlarged and improved, were re-opened on Tuesday before last. The new school-room is 60 feet by 36, and the class-room 12 by 12. They will accommodate 300 additional children: the under room will take 250, thus making provision for the education of 550 poor children. The mason's work was done by Mr. Bevan; the carpenter's by Mr. Banner; the plasterer's and painting, by Mr. Hill; and the plumbing and glazing by Mr. Osborne.

Birmingham.—Great preparations are being made by the corporation and council of the Midland Institute to give to his Royal Highness Prince Albert a welcome befitting the Consort of her Majesty, and the errand upon which he will come. Birmingham has much to gain by the success of the scheme on foot.

Warrington.—The foundation-stone of the new market was to be laid on Thursday, by the mayor.

Liverpool.—The marine surveyor of Liverpool, Lieut. Lord, has announced his intended resignation of the surveying department of his official duties. He expressed his willingness to undertake the duties of his office on shore, but required his present salary of 600*l.* per annum to be increased. The subject has been referred to the Marine Surveyors' Committee, with the understanding that the salary is not to be increased beyond its present amount.

Bury.—The local Workhouse Building Committee met Mr. Holmes, the architect, on Wednesday before last, as to alleged errors in the erection of the workhouse. The guardians alleged that the beams intended to support a belfry were much too heavy, and that others, one-fourth the strength, would have sufficed. Mr. Holmes, in explanation, asserted that the plan of the turret had received the approval of the Board, and the beams had been made stronger than otherwise because the walls were not of sufficient strength to bear the additional weight. He believed that if the alteration proposed by the guardians were to be carried into effect, the building would be down in twelve months. Some of the points complained of, the architect attributed to the blunders of the guardians themselves, and he refused to give up the work to others who might be incompetent.

Bolton.—On Tuesday before last a *soirée* was held in the Temperance-hall here, to celebrate the completion of the new premises in Oxford-street, for the new mechanics' institution. The premises contain large reading and class rooms, library, &c. The *soirée* was attended by about 600 persons, and afterwards some 300 more were admitted. Lord Stanley presided, and was supported by the principal townsfolk. Lord Stanley promises well.

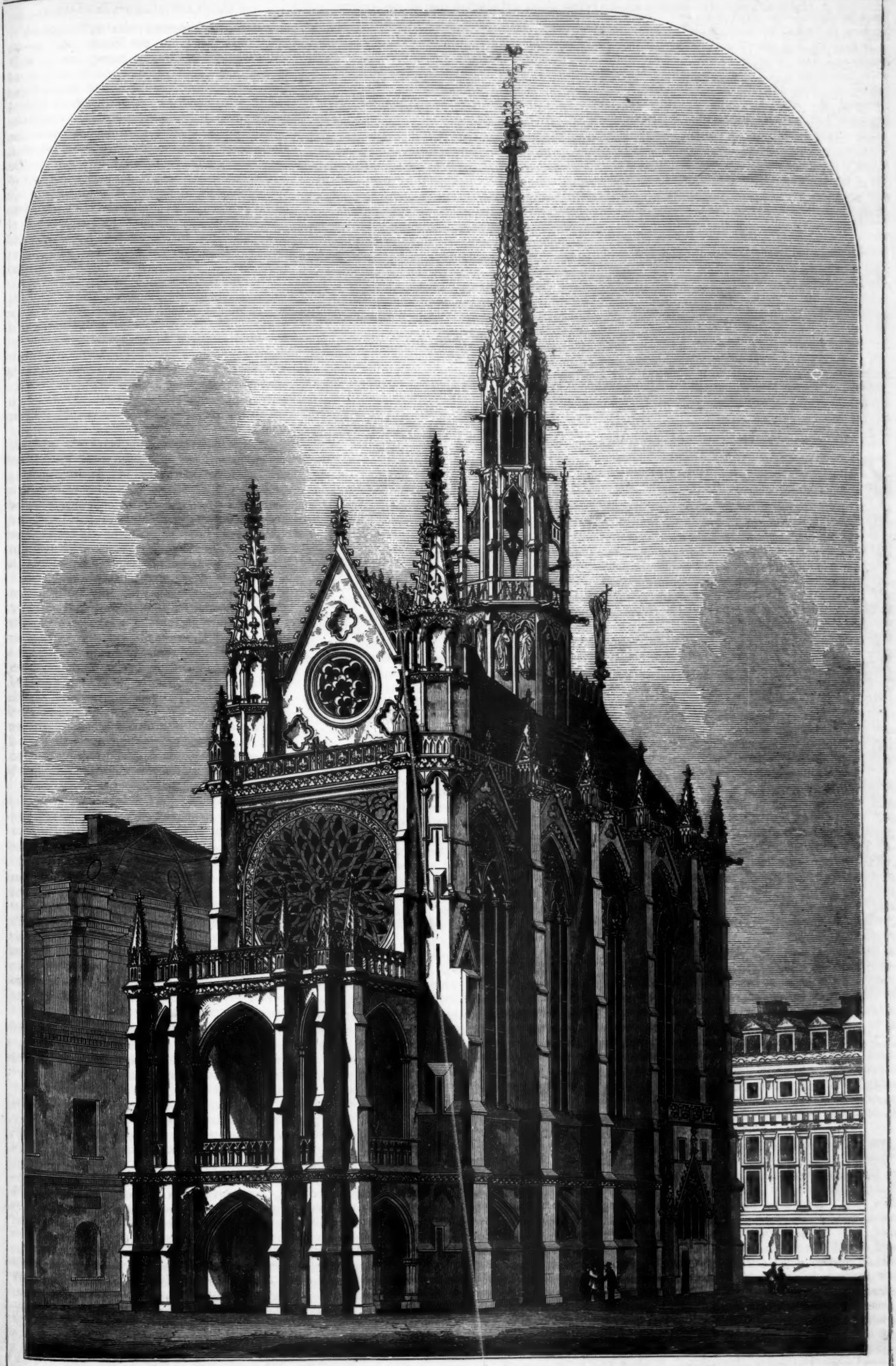
Penrith.—The building of baths and wash-houses has been commenced. The contracts for completing the design come within the limits of the proposed capital, viz. 2,800*l.* in shares of 1*l.* each.

Peebles.—The local Gas Company are getting erected a new tank and gasometer, which are nearly completed. The new tank, according to the *Border Advertiser*, is 25 feet in diameter and 12½ feet in depth, capable of containing 5,000 feet of gas, the old tank being only calculated to contain 2,000 feet. The estimate for the new tank and gasometer is 400*l.* exclusive of the digging or founding work.

* London: Knight and Co. Fleet-street. 1855.

St. Paul's Cathedral.—Your correspondent "P." in last week's *Builder*, says he "was struck" with the unsightly appearance of the organ. It is *some months* since I myself observed the same thing, and I am really concerned to see that so late as last Monday the Latin inscription, serving as our only public recognition, "Hujus ecclesiæ et urbis conditor," was missing from its place,—haply lying (as I saw it last) in chaotic fragments on the pavement of the church. Is *this* City memorial to share the fate of the crypt of Gerard's Hall?

W. Y.



THE "SAINTE-CHAPELLE" OF PARIS.

[See page 505, *ante*.]

CHURCH-BUILDING NEWS.

Worsley.—The new Independent Methodist Chapel just completed at Roe-green, near Worsley, was opened on the 7th instant. The building is rectangular in plan, 48 feet in length and 33 feet in width. The style adopted is Early English, and the materials used in the erection are red brick, with St. Helen's stone, and white brick dressing. The front, exteriorly, is divided into three compartments, or bays, by buttresses of white bricks, which are continued by a slight projection above the water-tables, up to what may be termed a parapet to the gable, also of white brick; on the top of which is a moulded stone-coping, and moulded corbels and cusped gablets at the springers, and terminated at the apex by stone gablets and an ornamental finial of terra cotta. In the centre compartment is the entrance doorway, with jambs, arch, and label of splayed and moulded white bricks; and outside the label is an arch of blue bricks. Over the doorway is a large three-light window, resting on a moulded string of white brick; and above this window is a small triangular window, which serves to relieve the space between the head of the three-light window and the lower apex of the white brick parapet. In the side compartments are single-light windows resting on white brick strings. The sides of the chapel are each divided into five bays by white brick buttresses, and there is a double-light window in each bay on white brick strings as before. The whole of the windows have jambs, arches, and labels of white brick, with blue brick arches outside the labels. The windows are glazed with cathedral glass. The roof is entirely open. The principals have semi-circular laminated ribs, springing from moulded stone corbels. Each rib is in six thicknesses of 1¼ inch red pine deal, steamed and bent. The whole of the timbers will be stained and varnished. At the rear of the chapel is a vestry for private meetings. The walls are all plastered, rough stucco in the interior, and line drawn in imitation of stone. The chapel will be heated by Walker's patent stove, placed in a chamber beneath the floor. There are no galleries, and more than one-third of the sittings are free. The architect was Mr. Sugden, of Leek, under whose direction and superintendence the works have been executed by Mr. Pollitt, of Worsley.

South Wales.—An ecclesiological movement has long been at work in and around the ancient town of Cardigan. The churches of Tremayne, Verwick, St. Dogmell's, and Kilgawen have either been rebuilt or thoroughly restored; and although neither possesses any great artistic merit, are still highly creditable to those whose liberality aided and directed the work. To these may be added the old parish church of Cardigan, now being reseated throughout; the church at Llanfair Nantgwyn, about to be almost entirely rebuilt; and the new churches now rising at Aberpoth and Llandugwydd. The three last-named churches are being carried out, together with others in the same neighbourhood, from the designs and under the superintendence of Mr. Withers, of London.

Derby.—The alterations for some time in hand at St. Mary's (R.C.) Church here (the first work of the late Mr. Pugin) are almost drawing to a close. The aisles have been prolonged into east end chapels, one 60 feet long by 22 feet wide (which is used for daily Mass, and school children on Sundays), the other small, and intended for the reception of a Pieta group, from a design of Mr. John Powell, which appeared in this year's Exhibition of the Royal Academy. The additions also comprise an extensive sacristy, or series of sacristies, fitted up with conveniences for carrying out the services, and which are built, together with the chapels, in the Decorated style of Gothic architecture, the Decorated being added to the Perpendicular style of Gothic. The wooden altar and triptic have been removed, and replaced by one carved in Caen stone and marble. The floor will shortly be laid with Minton's encaustic tiles. The chancel is divided from the nave by a wrought-iron screen, with brass ornaments. In the chancel the ribs of the groin have been gilt, and the panels or spandrils ornamented with foliage and angels. The walls have been also gilt and coloured. The decorations do not include the usual stars and fleur-de-lis on blue ground. The three east windows are of perpendicular glass from Messrs. Hardman and Co.'s, of Birmingham. The whole of the works have been carried out from the design of Mr. E. W. Pugin, assisted in the decoration by Mr. J. Powell, who is also the designer of the glass.

Preston.—The new cemetery here is being opened to the several Church denominations amongst whom it is divided. The whole is comprised in an area of forty-five acres, situate in the township of Ribbleton. Thirty-six acres are apportioned to the Church of England, the Roman Catholics, and the various dissenting bodies. Of the remaining nine acres, eight at the south-west corner remain unapportioned, and one is occupied by the chapels of the various religious denominations, the entrance lodges, &c. A small chapel, in the early English style of architecture, has been erected in each of the three divisions; and the ground is intersected with winding walks. The whole is enclosed by a stone wall, surmounted by a high iron railing. After passing through the entrance-gates, to the right is the unconsecrated portion devoted to the use of Dissenters. Here a chapel has been erected, 64 feet by 22 feet, consisting of carriage porch, inner porch, chapel, and robing-room. At each end of the carriage porch is a buttress, finished above the string course with open wrought and traceried sides, with cross stays, open timber roof, and carved brackets. Above the roof of the chapel, in the form of a cross, rises the bell turret, supported by ornamental buttresses, with canopies, moulded string courses, carved bosses, and finials. The turret is surmounted with a spire. At the termination of the roof the turret is changed by arches into an octagonal form, and is carried up to the belfry by tracery canopies with moulded weatherings and carved terminations. The belfry, the total height of which is 55 feet from the ground, is open at the sides with eight lights and trefoil heads, with hood mouldings and carved terminations. The windows of the chapel have two lights, with foliated heads. The east window is a triplet lancet, having over it a trefoil gable light. A three-lighted window, with a high-pointed foliated head, appears in the western gable. To the left is the ground set apart for the Church of England, recently consecrated by the Bishop of Manchester. The chapel consists of a nave, side aisle, vestry, and robing-room, and a tower and spire. The nave is 65 feet by 26 feet, and is separated from the aisle by a stone arcade, consisting of five arches. The side aisle is 40 feet by 10 feet, and the nave and aisle windows are two-lighted. There is a carriage porch through the tower, and archways to the entrance to the chapel from the porch. The spire, with the tower, is 90 feet in height from the ground. The exterior of the building has buttresses, and the angles of the tower are supported by buttresses. In the interior the east window is five-lighted, the west window four-lighted. The north side of the cemetery is set apart for the use of Roman Catholics, and was consecrated on Tuesday, in week before last. The chapel consists of nave, 52 feet by 25 feet, chancel, vestry, tower, and spire, and an open porch in the tower. The chancel is 20 feet by 9 feet. A rather low spire crowns the tower. In the interior of the chapel, the double-mullioned windows have been used for the side lights to the nave. The west window has four lights, and the east window three lights. The whole of the chapels are of random coursed rubble work, with Longridge stone dressings. The sittings in the inside and the roofs are of Baltic timber, stained as oak, and varnished. Minton's coloured tiles compose the floors. The roofs are covered in with blue slate from the Penrhyn quarries, surmounted by crested ridge tiles. Mr. T. D. Barry is the architect of the chapels and lodges, and the laying out of the ground has been entrusted to Messrs. Myres and Veevers, of Preston. Mr. Armstead, contractor, has executed the masonry, Mr. T. Turner the carpentry work, and Messrs. Ferguson and Whitwell the plumbing and glazing.

Bishopwearmouth.—The new cemetery at Bishopwearmouth is situated about a mile out of the town, and consists of four fields of 36 acres. There is now in the process of erection a brick ramped wall, 8 feet in height, to surround the whole. There are also to be two chapels, built in the Gothic style of architecture, from designs by Mr. Moore, of Sunderland, architect. These chapels will be built in different places for the use of Churchmen and Dissenters. A portion of the ground is to be set apart for the burial of Jews. There are two lodges to be built. The bricks used in the erection are made from the local clay. In the grounds the works are making progress under Mr. Neal, contractor.

Glasgow.—A site for the new Free Church Theological Hall here has been obtained in the vicinity of Woodlands-terrace. It will form one of the principal entrances to the West-end-park.

CAUTIONS ON CHURCH BELLS.

I AM glad to see you have published a suggestion, which has also been copied into the *Times*, that the old practice of furnishing churches with peals of bells should be more frequently followed, now that we have got past the times when everything not strictly utilitarian was condemned as Popish, or unchristian. But I take the liberty of adding to that suggestion what I am convinced is a very necessary caution, viz. that in this, as in other points of church building, people should not be so ambitious as they generally are, to get grand effects out of insufficient materials.

There are two ways in which this mistake is committed with regard to bells. The first is the simple one of putting more bells into a peal than is suitable to their weight. I was lately consulted about a clock to strike the Cambridge quarters, on a peal of twelve bells; and I was astonished to find the tenor is only 19 cwt.—a bell which in olden times, even in the last century, they would never have thought of making the tenor of more than eight. I see, too, in the paragraph I have referred to, 14 cwt. suggested as a suitable tenor for a peal of eight. The six larger bells of such a peal (if good ones), would make a nice peal of six; but six bells of that weight are only fit to be the first six, and not the last six, of a peal of eight. The best of all peals of eight is in the key of E flat, a favourite peal with the old bellfounders; and it requires a tenor of 30 cwt. to do it justice. This was the old Doncaster peal, and a much better one than the heavier peal, with a thinner tenor, that was substituted for it in 1835.

The other mistake is far worse, because it produces not *too many* bells to be rung in a peal, but a whole peal *too bad*. It is the miserable device of making bells of a deep note, by diminishing their thickness instead of increasing their size and weight proportionally. I have just now said that this was done to a small extent and with bad effect, in the peal lately burnt at Doncaster. It is now done to a far greater extent, and with far worse effect, systematically, by one of the only three makers of large bells in England, and not for want of warning of what the effect would be, or of complaint about what it had been in peals already made by him. If ever I hear the larger bells of a peal (which are always thinner in proportion than the small ones, even when right), of a clanging, *potty* sound, instead of a full rich one, I know immediately where they have been cast. And I believe I can tell equally well the birthplace of bells like those of St. Paul's, Knightsbridge, with a dull, harsh sound, as if they were made of something else than bell-metal, or of bell-metal cast unsoundly.

The old-established bell-founders are, of course, very angry at my saying, at the Royal Institute of Architects lately, in a discussion reported in the *Builder*, that the art of bell-founding had retrograded rather than advanced. They will find that Professor Wheatstone, judging from the three successive attempts of the two founders I have alluded to, at the Royal Exchange, has expressed the same opinion in the Parliamentary paper lately published about the Westminster clock and bells. The experiments I there mentioned as in progress at Messrs. Warner's, have confirmed most of the opinions I then expressed. I hope before long to be able to publish, in some form or other, some definite conclusion from these and other experiments now in progress; and that the time is come when bell-founding has seen its worst. In

the mean time, I wish to caution church builders against being tempted, either by low estimates, or low notes, or high-numbered peals of small weight, into ordering such an expensive article of ecclesiastical furniture without some very sufficient guarantee of its quality, of which bell-ringers, rather than mere musicians, are generally the best judges.

E. B. Denison.

MEMORIALS.

The Huskisson memorial window, designed by Mr. Digby Wyatt at the request of Mrs. Huskisson, has been put up in the north aisle of Chichester Cathedral. The subject is "The Last Supper." Three tables are introduced, thus affording scope for the introduction of additional figures in the side lights. Above are small sitting figures of angels, with musical instruments; and the whole is surmounted by such symbols as the dove, the entire subject being relieved on a richly-traced background, mingling geometrical with floral and other forms. The full-sized cartoons were made by Mr. Clayton, under Mr. Wyatt's direction; and the glass was painted by Messrs. Gibbs.——A monument is about to be erected in the nave of York Minster, to the late Archbishop of York, by the Harcourt family. The sculptured figure is recumbent and in full canonicals: the wig is to be regretted. The design was by Mr. Noble.——It is proposed to erect at Manchester, in front of the Infirmary, a bronze statue of Watt, on the pedestal corresponding to the one on which the statue of Dalton has lately been placed. The same economical plan that was adopted in the case of Dalton's statue is suggested for that of Watt: as it is supposed that it would not be possible to raise the requisite sum for an original statue, it is intended that a copy be made of the statue of Watt in Westminster Abbey, the estimated cost of which would be 900*l*.——A monumental slab, designed by Sir C. Barry, has been erected at Dowlais, over the remains of the late Sir J. J. Guest, at the desire of his widow and family. The centre slab is of red Cornish porphyry, and the columns the same: the rest of the ornamental work is in Derbyshire alabaster.——Mr. Evan Thomas has submitted to the Vivian Monument Committee at Swansea, his designs for the proposed statue of the late representative for that borough. The committee approved of the design, as being well adapted for the intended site, the open space in front of the Guildhall. The committee requested Mr. Thomas to furnish them with a design of a suitable pedestal for the bronze statue.——From Berlin, says the *Literary Gazette*, we learn that the sarcophagus of the late king of Hanover, which is now being shown in Professor Rauch's studio, is to be forwarded in a few days to Herrenhausen, where the monument to the late queen, also from the chisel of Rauch, is to be erected. The sarcophagus is of marble, with the statue of the king in a recumbent posture on the cover: the head leans on a cushion, the body is clothed in the hussar uniform, and enveloped in the royal mantle.

RESTORATION *v.* DESTRUCTION.

If the arguments of an old member of the York Architectural Society, trying to justify the grievous mutilation of the chancel of Spofforth Church, are to stand good, we may soon introduce the principle of last century, viz. the wholesale destruction of our ruinous churches, and the replacement of them by our own so-called improvements. If by restoration we are to understand a return to the original state of a building in its very first stage according to the scale that *our funds permit*, we shall assuredly have to destroy most of our pointed work, to restore the old Norman or Saxon, as the case may be; for there are few churches restored that do not in some part show traces of the original Norman work, whatever else may have been superadded in later times. If this is really to be admitted as a principle of restoration, we may tremble for our cathedrals, and our best examples of ancient architecture, which may be speedily reduced to their primitive rudeness and small dimensions, on the plea of "bad repair" and want of funds. It is surely a wretched argument for the destruction of a fine chancel, that it was larger than was required for the use of the parish. If we were to apply the same rules to our restorations in other cases, we should sacrifice our finest buildings to the shabby utilitarianism of the slop builder; and if we cannot run up our new work at a few months' notice, it will follow that we must prefer our cheap and nasty substitutes, and ruthlessly destroy what time has spared us.

What would have been said had the church of St. Mary Redcliffe, Ely Cathedral, or a hundred other fine buildings, been "restored" in the same fashion. The chancel was too large, it is said. Screen it off, then, and as funds come in, give it that loving and reverend repair and restoration foot by foot, nay, inch by inch, if it cannot be done more quickly. Forego for a time the little luxuries of encaustic tile and stained glass: don't throw away money on those worse than useless appendages, pew doors; and do not think that, because a restoration cannot be done at once, it is therefore necessary to destroy what cannot be now restored. Rather let us have a piece of interesting ruin than nothing at all, and wall off the ruinous end. The remark that the indication of the former chancel should be removed is characteristic: like the maid who breaks the china cup, and throws away the pieces to prevent detection; like the pavior, who throws sand over the mistakes in his work, or the jerry builder, who daubs his compo over rottenness, he would smooth over the evidences of the shabby act. Nay, let them remain: perhaps at some time, from these stray bones a more loving hand may restore to its pristine beauty the desecrated remains.

E. W. C.

GAS IN SEWERS.

In the forenoon of Friday, the 19th, that portion of Brompton lying between Alexander-square and Pelham-crescent was disturbed from its habitual quiet by a violent explosion, which was, fortunately, attended with more alarm than positive damage to the inhabitants or to the locality. For some days past there had been an escape, we are told, from the pipes of the London Gas Company, which was undiscoverable, and in the course of tracing it, it was found that the main was carried through the crown of the sewer, under the Brompton high-road. A junction showing itself in the sewer, the very unsafe means of testing its tightness, namely, by the application of a light, was resorted to: the connexion was as it should be, but the light caused the gas that had accumulated in the sewer, mixed of course with the atmospheric air, to explode: this, acting in the confined space, forced up the heavy cast-iron covers to the man-holes, to the great danger of the passers by, forcibly dislodged the bell-traps, and disturbed the drains in some of the houses. In one case of which we are cognizant, it displaced the York stone paving all along the course of a 12-inch drain of rebated brickwork, without doing any apparent damage to the drain itself. Had there been any men in the sewer, not an unusual occurrence, loss of life must have ensued. This accident should induce caution.

VISITORS IN PARIS.

I have read, on my return from Paris this week, your article on the state of the health of that capital, and coincide with you in every line. I only regret the Emperor may not, perhaps, have an opportunity of reading such an excellent article, which is but too *véridique*. Pray do not relent in your exertions.

During my residence, I could not help noticing the bad smell prevailing in many parts of that now beautiful city.

The day before my departure, his Majesty had approved of a report presented him by the corporation for the pulling down of 5,000 houses.

Paris next year will be supplied with water *à l'instar de Londres*, and the Seine will be canalized from Rouen to Paris, besides the new Boulevards about to be laid out, the extent of which will be nearly five miles each, commencing from the Lyons Railway and Strasbourg Railway.

L. F. De P.

Will you permit me, through your columns, to thank your correspondent "D. W. R." for his useful hints, in a late number, to intended visitors to Paris. I took his advice most catholically,—always asked for "*mon addition*" after dining; for "*une groseille*," "*un café*"—in fact, for nearly everything eatable, in the singular number, even to "a leg of mutton *à la female gardener*," whatever that may mean; dined in the Palais Royal at 2 francs 50 centimes, and lodged at the Maison de Goest, Rue Neuve, St. Augustin, No. 46, "*au cinquième*," and I believe occupied the same room as your correspondent "D. W. R." but Mdme. De Goest was not sure upon that point. It would not further identify the room if I were to say it contained a milk-jug and slop-basin for matutinal ablution, a cambric handkerchief you are expected to regard as a towel, and a large clock with a gold face, apparently afflicted with an internal complaint, that makes hideous noises through the night; as I believe these are the usual concomitants of all French bed-rooms.

I entirely agree with your remarks on the defects of the Paris Exhibition, and the causes thereof, and your commendation of the works of our artists, which really show to great advantage beside the dull chalky colouring of Ingres and Decamps, touching which the feuilletonists (M. Gautier at their head) throw themselves into such wonderful ecstacies of frenetic admiration. In water-colour the English are quite alone, and every Frenchman with whom I have conversed has acknowledged our supremacy in this branch of art. As to architecture, as you observe, the French are inadequately represented, and you must look in the Rue Menars, Rue de l'Alma, Rue St. Honoré, and not in the Palais des Beaux Arts, for proofs of their progress; and in design and constructive skill, I would particularly mention a house in the Rue de l'Alma, by M. Leroy, as a very pleasing and correct specimen of modern French architecture. In the Ecole des Beaux Arts there are exhibited the designs to which the annual prizes for the best design for a School of Elocution were awarded, also very commendable, and two out of three bear strong marks of the peculiar modern style which has produced the Library of St. Geneviève, the Ecole des Beaux Arts, and many more recent buildings in Paris.

Palladio.

A NEW EFFECT IN WINDOWS.

I have lately found that by the following simple process a very beautiful effect may be produced in stained glass, adapted for ecclesiastical purposes, at a very moderate price. Take some pieces of flashed glass having a clear pattern *cut* upon them, and unite any two of different colour and pattern. The result will be a design of great beauty of form, richness of colour, and especially of a sparkling brilliancy, almost unrivalled in any other kind of glass. I have had some leaded up in diamonds, and the effect is so pleasing that they will probably be adopted in the chancel of a church which I built some years since, and about which my opinion had just been asked. If the makers of this sort of glass would manufacture it specially for the purpose, the result would be doubtless still more satisfactory; but with the ordinary specimens any of your readers may satisfy themselves of the truth of my statement. The kinds of pattern best adapted for the purpose are stars, crosses, circles, and generally good geometrical forms. I may add that the expense is very trifling, considering the effect produced, as the glass in single colours is manufactured at a very low price, and the process of combining the two, by which the rich effect is produced, costs comparatively nothing.

Edw. Ellis.

REMAINS IN BEAUFORT-ROW, CHELSEA.

A correspondent has favoured us with particulars of some remains cut into during an excavation now in progress for a new sewer in Beaufort-street, leading to Battersea-bridge, Chelsea. "It occurred to me," he says, "that such relics of a barbarous age, in bricklaying (namely, of a time when stability and consequent durability were ignorantly viewed as amongst the essentials in house-building), might, peradventure, be the vestiges of some mansion of note, and entitled as such to a place in my Antiquarian Note-book; and I consequently became more heedful of what was doing, especially when I one morning heard it declared, with some confidence, by a bystander, that these fragments undoubtedly belonged to an old residence of a duke of Beaufort, said to have stood here; and that the porter's lodge which had belonged to this same dukely dwelling, was even now standing, and was, in fact, no other than the well-known old Clock-house and Herb Distillery still extant, in humble guise, at a short distance hence, in the King's-road. The principal portion of the wall in question appeared, then, to me, to extend for about 80 feet opposite, and northward of a snug dwelling, on the east side of the street, named Victoria Villa. Its thickness, judging from that of portions running off from it at right angles, might fairly be considered to be not less than 3 feet. Its depth for about 45 feet of the southernmost portion, appeared to extend to about 7 feet below the roadway, whilst the depth of its northern portion was only 3 or 4 feet. At about an equal distance from each end, and of the greater depth, was found what appeared to be an arched doorway, about 3 feet wide, through the massive wall, and situate as if at the end of a passage of about double the width of the doorway, which was in the middle, the space being filled up with brick rubbish, and the returns or side-walls of this passage seemed about 3 feet thick. At a distance of 30 feet of blank space, of gravel, southward, another portion of transverse wall of about 2 feet thick, was cut through; and at about the same distance farther southward still, another portion about 2 feet thick.

The northern portion of the wall, which, as I have before said, was only about 3 or 4 feet deep, appeared to terminate, with a transverse portion running westward, opposite to the door of the house named 'Linden Cottage; from whence there was a blank space of gravel for about 20 feet, when a quantity of brick rubbish was cut through; and whence the trench for the sewer is still proceeding. Not being (as you will doubtless have discovered), a craftsman in human habitations, nor provided with any other measuring apparatus than the pair of compasses common to all bipeds, my phraseology and quantities must be taken as only an approximation to what I have endeavoured to describe, and allowances made accordingly." W. Y.

ROYAL INSTITUTE OF BRITISH ARCHITECTS.

The session 1855-6, will be opened on Monday, November 5th, at eight o'clock, and there will be meetings on the following Monday evenings:—

1855—November	...	19th
December	3rd	17th
1856—January	14th	28th
February	11th	25th
March	10th	31st
April	14th	28th
May	5th*	19th
June	2nd	16th

* The annual general meeting of members *only*.

The profession, whether members of the Institute or not, may advance the general interest by contributing the result of their experiences, notes of their travels, or such suggestions as may occur to them.

THE BUILDERS' BENEVOLENT INSTITUTION.

Sir,—On Tuesday next, October 30, the anniversary festival of the Builders' Benevolent Institution, will be held at the London Tavern, and I do sincerely hope the meeting will be a profitable one for the interesting object in view. There are some persons who seem to have a dislike to a dinner on occasions of this sort, yet I cannot entertain the idea that the most fastidious will charge any of the directors, stewards, or any of the numerous assembly who may attend to take part in the business of that day, that they do so only for the sake of eating and drinking. No, indeed. I am quite sure the great object is to bring together as large a number as possible of generous, liberal-hearted Britons, for the purpose of mutual congratulation for the great good already done, and to encourage and stimulate each other to steady perseverance for the future, to aid and assist those of our fraternity who are aged, afflicted, unfortunate, and unable to help themselves.

Looking over the list of subscribers, I find a good many who have done well; but I do think there is only a very small part of our brethren engaged in all the various branches of the building trade who have seriously thought upon the matter. I would say to all, "Come, and give us a long pull, a strong pull, and a pull altogether."

I should likewise greatly rejoice to see the wealthy freeholders, merchants, and others, whose estates have been vastly enriched in ground-rents and other improvements by the persevering, industrious efforts of the builders. Pray, ladies and gentlemen, do come forward and give, by your liberal donations, a new impetus to the meeting. A thrill of gratitude and joy will be experienced by all, and not only so, but many widowed hearts will rejoice, and the blessings of many who are ready to perish will rest upon you.

Kingsland. Thomas Smith.

Notices of Books.

Reading Lessons. Advanced series, in Five Books. Edited by E. Hughes, Head Master of the Royal Naval Lower School, Greenwich Hospital. London: Longman and Co. 1855. Books I. and II.

Though forced to decline answering such inquiries, we are often asked as to a good series of "reading books" for juveniles not exactly children. Here is one of a new and sterling description. It is made up of brief essays, chapters, or articles on various subjects, written by authors well acquainted with the particular subjects on which they write,—as for instance, "On Beauty in Form and Nature," by Mr. Digby Wyatt; "On Colour in the Decorative Art," by Mr. Owen Jones; "On the various Forms of Poetry," and on other literary subjects, by Mr. G. L. Craik; "On Natural Philosophy," by Professor Tyndall; "On Chemistry," by Dr. Frankland; "On Language," by Mr. Latham; "On Food," by Dr. Lyon Playfair; "On the Life of James Watt," by Mr. Hugo Reid; and "On Physical Geography," and other subjects, by Mr. Hughes himself. The whole series is disposed on a distinct plan of development, comprising Philosophic Method, from "How to Observe," in the first book, to "Scientific Habits of Mind and Method," in the fifth; followed up by a section on scientific biography, beginning with the herdboy, Ferguson, the astronomic observer, and ending with Michelangelo and the ideal of art. Next follow in a like way, lectures on physical geography, geology, vegetable physiology, animal physiology and health, natural history and ethnology, political and domestic economy, chemistry, arts and manufactures, mechanics and mechanism, natural philosophy, astronomy and navigation, decorative and fine arts, and lastly literature. Thus each 3s. 6d. book contains a little on all these subjects, every subsequent book going a little more deeply or a little more in advance of its predecessor on all. The work is pretty fully illustrated with engravings, and each section or article has the name of its special author appended. There can be no question that these are the best "reading lessons" ever published, so far as regards suitability to the times in which we live; and many more than mere juveniles (nineteenth century enlightenment notwithstanding) will be likely to take "lessons" from them. The whole series is not yet issued.

Miscellanea.

A Statue of Wren near St. Paul's.—A correspondent "W." re-urges that, as there can now be little doubt of the vacant space near St. Paul's being left open, we should erect there a statue of Wren. "We can boast [he says] of statues in various parts of the metropolis,—some to great men, some to mere notabilities of a day, but not one have we of any of our great masters in art! Could we begin with a more fit subject than the '*conditor hujus urbis?*' Could any place be better adapted for a statue in his honour than one in close proximity with the greatest effort of his genius? Such of your readers as have been at Florence cannot but have been struck with the effect of the statue of Brunelleschi, on the Piazza del Duomo, the plan of his *opus magnum* on his knee, and comparing it, as it were, with the reality. Could we not do something in the same spirit? On the pedestal there might be bas-reliefs of remarkable incidents in Wren's life, and most especially would I suggest as one subject the old man's annual pilgrimage to the scene of his triumph."

Model Dwellings, Dudley.—We are informed that the architect has altered the system of smoke conduction laid down in the plan—carrying up *four* flues instead of *one* smoke tube—the action of which was not satisfactory.

Labourers' Cottages.—Sir Charles Anderson, in his paper on "Cottage Architecture," read at the recent meeting of the Lincoln Diocesan Architectural Society, said—"In these days the poor have been driven into the towns from the country, and much obloquy has been thrown on landowners as if they had been the sole cause of this. No doubt they shared in the blame; but many causes had been at work to bring about this evil: the former poor law—the natural tendency of men to shift the burden of supporting the indigent from themselves upon others. But there was one other cause—the cost of building cottages. This was the problem he wished to see solved—viz.: how a cottage having three good bedrooms, with suitable conveniences, could be built so as to be substantial, warm, convenient, not so unsightly as to destroy self-respect, and yet pay a fair interest on the money spent. Many proprietors had most laudibly spent their money in building cottages near their own residences, which were models of beauty and excellence. He named the villages of Belton, Blankney, and Hainton, as affording examples of this admirable munificence; but such models could not be followed in ordinary cases. We must have something less costly before we could expect proprietors to lay out their money. In different localities different materials would be found,—stone, brick, tile, slate, and the relative cost of each would make estimates differ, as well as the cost of labour. A simple mode of drainage, the quality of mortars, the pitch of roofs, the height of rooms, the situation of doorways—all these require careful consideration; and it would be one of the most beneficial tasks of the society to endeavour to obtain plans which had been tested, with vouchers for the cost of all the items, and the experience of the inmates as to their comfort, in order to arrive at what was wanted.

The Infirmary at Dundee.—A considerable disagreement has arisen between the building committee, the architects, and the builder. The architects have been superseded, and Mr. Peddie, of Edinburgh, called in to report. We have received some statements on the subject.

Architectural Society of Northampton.—This society held its annual meeting on Wednesday before last, Lord Alwyne Compton in the chair. The Rev. Thomas James read the report, and afterwards a paper on "Church Work for Ladies." Lord Overstone moved the adoption of the report, and the Rev. Sir G. S. Robinson, in seconding the motion, drew an amusing contrast between the present care for the decent service of the church, and the neglect which prevailed five and thirty years ago. He was afraid, he said, at that period to ascend his pulpit, lest it should give way with him, and, upon representing the case to the churchwarden, that functionary asked him, after due deliberation, and with the utmost gravity, whether he did not think an old pipe barrel, with a door cut in the middle, would make an excellent new pulpit. He mentioned, also, the case of a friend of his, who found, on going into the pulpit to preach, two mangold wurzel roots, with holes in them for the reception of the candles! The Rev. G. A. Poole read a paper on "Photography as applicable to Architecture," in the course of which he suggested the association of parties of photographers and sketchers, who should supply each others' defects, and be of mutual service in the way of architectural and archæological illustrations. The Rev. W. Law, of Marston Trussell, controverted the allegation that photography was incapable of representing aërial perspective, and exhibited some negatives in confirmation of his opinion. Various objects of antiquarian interest were exhibited at the meeting.

Project for Sewerage of Surrey Side of London.—A correspondent, "W. R." a practical engineer, sends us a sketch of a plan which he suggests for the conduction of the sewage of the south side from Barnes to Plumstead-marshes, whereby he designs to overcome the difficulties arising from the fact of so much of the ground on that side lying below the level of high tide in the river. He proposes what certainly at first sight does not much recommend itself to approval, namely, the formation of a cast-iron tube sewer, to be raised 24 feet above the surface, on iron columns, or brick piers, at its commencement, and gradually to fall throughout to the marshes, or below, if requisite. This tube is to be air and water tight, and lined with glazed pottery. It would be of oviform shape, made in segments, bolted and screwed together, and should be 4 feet 6 inches by 3 feet 6 inches at Barnes, and gradually widen to 10 feet 6 inches by 7 feet 6 inches at the marshes. The sewage would be pumped up by steam power into this tube at pumping-stations, from tanks; the first draining above Barnes, Richmond, Sheen, and Mortlake included, by means of brick sewers ending in the tank. Water might also, if necessary, be pumped up from the river to flush the tunnel, but our correspondent contemplates the transference of all that is left, after absorption, of the rain fall of the district through the tunnel sewer, and he gives estimates of quantities, from which he concludes that the drainage and sewage of twenty-four hours could thus be disposed of in ten hours. At Plumstead marshes he proposes to have four large receiving reservoirs, each capable of containing a whole day's sewage, which will here deposit its sediment, the fluid to be conveyed to the river through an open canal after being deodorized; the gas over the reservoirs also to be burnt, and the solid matter to be barged away coastwise. The whole line of tunnel is proposed to be made ornamental, and probably even to form part of a more general scheme for a railway and promenade, and a medium for gas, and water pipes, &c. The estimated cost of the sewer project is, 2,667,500*l.*

Surrey County Gaol, Horsemonger-lane.—Greater accommodation being desired here, the magistrates applied to Mr. Hill, the architect of the gaol at Wandsworth, to Messrs. Banks and Barry, and to Mr. Lapidge, the county surveyor, for plans and information upon the subject, and the first named gentleman sent in a report, in which he expressed an opinion that the gaol could never be altered in a satisfactory manner, and that the only plan was to pull it down and build a new prison. Messrs. Banks and Barry sent in plans for altering the present building in a manner that was satisfactory to the committee, at an expense of about 15,000*l.*; and Mr. Lapidge, the county surveyor, also sent in plans to carry out the proposed object, at a cost of 10,000*l.*; and the committee, in their report, recommended that the plan of this gentleman should be adopted and carried out. The matter has since been referred back to the committee, who are empowered to consider the whole subject, and report upon the advisability of altering the present building or to recommend the erection of a new prison.

The Cambridge Survey.—In the last number of the *Builder* (October 20), it is stated by a correspondent, that the new plan of Hereford, is "the only plan of a town for which an independent trigonometrical survey, computed from the meridian, has been made by any civil engineer." This statement is not correct. The Cambridge survey commenced in the early part of 1851, by Mr. William Radcliffe, in conjunction with whom I was subsequently engaged, was also "an independent trigonometrical survey," computed from the meridian of the Cambridge Observatory, the base line being measured on that portion of the Eastern Counties Railway, lying between the Cambridge Station and Newmarket road, and the proper correction applied for the difference of level. From the extremities of this line the position of a third station on the Castle-hill was determined, the three forming a well-conditioned triangle, from which other available and convenient points as church towers were observed as in the Hereford survey. The streets were all traversed and the stations plotted by computation.—Lewis Angell.

Chapel at Canonbury, Islington.—In consequence of the deficiency of church and chapel accommodation in this fast increasing neighbourhood, the committee af the London Congregational Chapel Building Society purchased an eligible plot of freehold land, at the corner of Alma-road, St. Paul's-road, Canonbury, for the erection of a chapel, and a few days ago the foundation stone was laid by Mr. Henry Spicer. The proceedings closed with the presentation of a bound copy of the Holy Scriptures, to each of the workmen, as also a gratuity in money. The chapel will be a very neat edifice, in the geometrical Gothic style, octagonal in form; length, 92 feet 6 inches; breadth, 66 feet; having a Gothic lantern turret, 110 feet high from the ground to top of vane. The roof is open timbered. There are minister's vestry, and deacons' vestry, lavatory, &c. entrance porches, staircases up to galleries, which will contain sittings for about 500 persons, and about 630 on the ground-floor. The communion-table is placed nearly in the centre of the building, in front of the pulpit. The chapel will be built of bricks, with white facings from Colchester. If the bricklayers go on as they have begun, it will be a good specimen of brickwork. Messrs. W. G. and E. Habershon are the architects. Messrs. Rowland and Evans, of Coleman-street, Islington, the builders.

Cast-iron Fountain for South America.—The Coalbrookdale Company have executed a fountain and public light for the Chilian Government, to be placed in the City of Conception. A view is given in the *Illustrated News*. It consists of a Corinthian column, on which stands a figure of Ceres. The base, which is cruciform, has on each of its quadrangular projections the figure of a mermaid. The head and body lean inwards towards the pillar, the hands uplifting a large shell, through which the jets of water forming the fountain will rush. Immediately above, the column is surrounded by scroll-work projecting over the intervals between the mermaids, and terminating in winged snakes, which support the lamps. It weighs 14 tons 5 cwt, is 12 feet square at the base, and is 34 feet high to the top of the figure Ceres. It is a very incongruous affair. The Corinthian column and its capital would seem to be scarcely six diameters in height.

Liverpool Architectural Society.—On Wednesday evening in last week the usual fortnightly meeting of the above society was held in the Royal Institution. Mr. G. Kenneth read a paper on "Serpentine applied to Decorative Purposes," and said he thought it capable of being wrought into the most beautiful ornamental designs, capable of minute carving, and that it was superior to marble, as its chemical composition enabled it to resist the absorption of either grease or acids, whilst fire had but little effect upon it. Serpentine was not brought into use to any extent, although its existence has been known for many years, until 1848, when Prince Albert recognised its beauties, and suggested its employment for decorative purposes. Mr. George Monier Williams afterwards read a paper "On the Use of Chemical Tests as applicable to Lime and other Matters connected with Building."

Railway Profits in America.—The Rutland and Burlington road, says the *Philadelphia Ledger*, shows net earnings for eight months and eleven days of 118,942 dollars. The Cleveland and Pittsburg road, for eight months, shows increase over corresponding time last year of 55,432 dollars. The earnings of the Black River and Utica Railroad for the month of August were 4011-84 dollars. The largest earnings of any previous month were 2,508 dollars, in July. The receipts of the Macon and Western road in August were 30,508 dollars, against 25,157 dollars, showing an increase of 5,231 dollars. The authenticated result of eight months' traffic this year on the Southern Michigan road, shows an increase of 286,181.

The Great Hotel du Louvre, at Paris.—At the recent meeting of the shareholders of the Société des Immeubles de la Rue de Rivoli, held at Paris, some details respecting this building, which promises to be one of the curiosities of Paris, were given. The building itself consists of one enormous house, the sides of which measure respectively 488, 458, 195, and 147 feet, the longest side facing the palace of the Louvre, and the longest end forming one side of the Place du Palais Royal. Round these two sides an arcade runs, with shops, in the style of the Palais Royal; the other two sides are also formed of shops, but without any arcade. Above the range of shops is an *entresol*, and above that the rooms belonging to the hotel, four stories high, and comprising 800 apartments. The principal court is entirely glazed over, and an external staircase admits the visitor to a vaulted gallery, from which doors lead to the various staircases, and also to the dining saloon. Both these apartments have the walls and ceilings decorated with wall paintings and gilding, in the style of the galleries at the Louvre. The building is entirely of stone, and has cost 294,000*l.*; the ground on which it is situated, 137,591; and the furnishing and capital for carrying it on are estimated at 80,000*l.*; forming a total of 511,591*l.*

The Iron Trade.—As was to be expected, the late attempt to force up prices beyond what the fair demand necessitated, has already damped and depressed even the previous demand, so that the Birmingham trade correspondent of the *Times* declares the trade to be "flat compared to what it was immediately preceding the late quarterly meetings." Indeed, it is rumoured that a fall of prices has been taking place instead of a rise, and many ironmasters already repudiate the quarterly decision, which is treated as if it were no decision at all, the actual majority, as it is urged, being the other way. Meantime the masters have been deliberately bringing themselves into a new mess in consequence of the attempt which failure induces them now to repudiate. The workmen in several of the most important establishments of the central iron district have given notice for an advance of wages, some of which notices have now expired. Simultaneously there is talk of a reduction of 10s. a ton on bars having actually taken place. The stock of pigs is becoming superabundant, and a fall of prices on these is also said to have occurred.

Surveyor: Cardiff Board of Health.—We learn from the *Silurian* that the appointment of surveyor to the Cardiff Board of Health has been conferred upon Mr. Thomas Wareing, at a salary of 250*l.* per annum. There were thirty-seven candidates. Mr. Wareing, before his appointment, was superintendent of the sewerage works now proceeding in Cardiff, according to the plans of Mr. Hawkshaw; and he will continue to hold this office, with an addition of 50*l.* to his salary as surveyor. The salary of the superintendent of sewerage works was 250*l.*

War Maps.—Mr. Wyld, the Queen's geographer, is usually ready to meet the public desire in regard to all places that become celebrated in the course of events, but he has almost anticipated the public curiosity by a map of the new point of interest in the war—Nicolaiev. It shows the keys of that naval building-port of Russia, Kinburn and Otchakoff, now in our hands. One result of the war will be, a knowledge of geography to thousands, some of whom will have to thank Mr. Wyld.

City of London and Counties Land Society.—In reply to the advertisement for an architect and surveyor to this society, twenty-eight applications were received: the gentleman selected is Mr. T. E. Knightley, of Cannon-street West.

Architectural Association.—At a meeting on the 19th instant, Mr. Rickman in the chair, a paper by Mr. Goodman, "On the Lights and Shadows of an Architect's Office," was read.

Church Stagnation in Camden-town.—In a populous and improving section of the northern limb, called Camden-town, a tasteful Gothic structure has stood for now two years; complete as to masonry, but vacant and windowless. There is the steeple with *its vane, and the area railed round: it is to all appearance* designed for a church, and as is usual in the suburbs, houses of some pretension to gentility encircle the building. But the works are suspended, and it stands like the house of the foolish builder, who counted not at first the cost. Seeing how many churches have been built within ten years throughout the kingdom, it is difficult to conceive wherefore in the heart of a wealthy neighbourhood a temple so well placed should be left open to the elements, some 10,000*l.* having been expended: possibly as many hundreds are required to complete. Suppose, Mr. Editor, we were to address the circumjacent residents, and put piety "*ad misericordiam?*" a voluntary subscription would soon supply the wherewithal to complete. Ambulans.

The Improvement of our Towns.—It might be productive of much good if county societies were formed to improve the towns and the public institutions by erecting annually one useful institution by the united subscription of the residents and owners of property in each county, independently of all improvements that are being made by individuals or otherwise. Although this is comparatively a small country, and we have enjoyed centuries of civilization, some parts are almost in a primitive state, yet all are under the same Government, and expected to aid in supporting and maintaining the institutions of the country. The pressure of the population in the metropolis is excessive; several counties of larger extent than Middlesex having no towns with 10,000 inhabitants, and scarcely a public institution of any note or character. The united contribution required to erect one of such useful institutions as public libraries, museums, baths, &c. annually in such county would require but little self-denial in comparison with the advantages to be obtained, not only to the locality, but to the county.—A. B.

New Chapel at Walworth.—The foundation-stone of a new Primitive Methodist Chapel, was laid last week in Richmond-place, East-street, Walworth, by Mr. Apsley Pellatt, M.P. About 600*l.* or one-half the cost of the building, has been received. The chapel will be in the Italian style, faced with white perforated bricks, and constructed from a design furnished by Mr. T. Humphreys, of Camberwell, the builder. It will be 45 feet long, 34 broad, and about 32 feet high, with three galleries, and affording accommodation for 600 persons. There will be also two vestries in the rear, and beneath the building are extensive schools of same dimensions as the chapel.

Tyerman's Patent Bond for Building Purposes.—In the Hoop-iron Bond for building purposes, patented by Mr. Tyerman, of Weymouth-street, the iron, 2½ inches wide, is notched to a depth of about one-sixth of its width, at intervals of 12 inches, on alternate sides; that is to say, any notch on one side is opposite to a blank space on the other side. One side of each notched or severed part is bent out to an angle of 45 deg.; these bendings being in reverse directions as regards the two sides of the iron, thus forming reversed claws, which, when the metal is built into the brickwork, become imbedded in the structure, and so prevent all chance of the hoop-iron being drawn out. It is an evident improvement.

Lighting.—Mr. J. Longbottom, of Leeds, has recently patented a method of combining atmospheric air with hydro-carbons, for the purpose of producing light and heat. The invention consists in causing the air, passed in contact with pumice stone, or other porous substance, saturated with caustic potash, and then with similar substance, saturated with sulphuric acid, in order to free the air from water. The dry and pure air is then passed in contact with the hydrocarbon to be used. It is propelled through the process by bellows or blowing apparatus. The combined matters then pass into a gasometer. The air may be freed from carbonic acid in a similar way.

Kingsgate-street Chapel, Holborn.—The foundation-stone for rebuilding the Baptist Chapel in Kingsgate-street was laid on Wednesday last, by Sir S. M. Peto. The new building will seat from 800 to 1,000 persons, front and side galleries inclusive. The probable cost of the whole, with school-rooms, vestries, &c. will be about 3,000*l.* Mr. C. C. Searle is the architect, and Mr. S. S. Wilson, the builder.

Plymouth, America.—The corner stone of an immense granite monument, commemorative of the landing of the Pilgrims, is to be laid at Plymouth (U.S.) on the 1st of August, 1856. Thirteen years is the maximum allowed for its construction, and it is expected to be one of the most important monumental structures in the world. It is to be hoped due care will be taken to make the desire a reality.

Splendid Yankee Project for the Equalization of Summer and Winter.—I intend to lay down in every street, court, lane, place, and alley of Boston 10,000 miles of iron main, 4 feet diameter, with 12-inch service-pipes entering each house. So *far so good. Then I shall commence at the top of the White Mountains to lay a pipe 10 feet in diameter* into the ground 6 yards deep, from the said White Mountains to the main in Boston, which will have been constructed as before remarked: this done, I shall build a steam-engine, 718,000-horse power [this way, if you please, I'm afraid some one hears me] I shall force the freezing atmosphere from the mountains into every house in B. There's no mistake about this—it's bound to go; and when it's finished, I mean to go in, that's flat-footed, for a line of pipes to the tropics to pump hot air into the houses in winter. These little jobs completed, and we will have our cool weather in July, and in January it shall be warm and comfortable, as it ought always to have been. I guess Nature's jig is about up, ain't it?—*The Toronto Globe.*